Operating systems laboratory

Ex 13 : threads

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#include <pthread.h>

#include <stdio.h>

#include <stdlib.h>

#include <string.h>

float avg;

int max;

int min;

void \*average(void \*val)

{

int sum = 0;

int \*ival = (int \*)val;

for (int i = 1; i <= ival[0]; i++)

{

sum += ival[i];

}

avg = sum / ival[0] ;

pthread\_exit(0);

}

void \*maximum(void \*val)

{

int \*ival = (int \*)val;

max = ival[1];

for (int i = 1; i <= ival[0]; i++)

if (max < ival[i])

max = ival[i];

pthread\_exit(0);

}

void \*minimum(void \*val)

{

int \*ival = (int \*)val;

min = ival[1];

for (int i = 1; i <= ival[0]; i++)

if (min > ival[i])

min = ival[i];

pthread\_exit(0);

}

int main(int argc, char \*argv[])

{

pthread\_t thread1, thread2, thread3;

pthread\_attr\_t attr;

//Initialising with default attributes

pthread\_attr\_init(&attr);

if (argc < 2)

{

fprintf(stderr, "usage: ./exe-file <integer value>\n");

return -1;

}

int \*val = calloc(100, sizeof(int));

//Storing No. of elements in the first index of array

val[0] = argc - 1;

for (int i = 1; i < argc; i++)

val[i]= atoi(argv[i]);

pthread\_create(&thread1, &attr, average, val);

pthread\_create(&thread2, &attr, maximum, val);

pthread\_create(&thread3, &attr, minimum, val);

pthread\_join(thread1, NULL);

pthread\_join(thread2, NULL);

pthread\_join(thread3, NULL);

printf("\nAverage value is: %.3f\n", avg);

printf("\nMaximum value is: %d\n", max);

printf("\nMinimum value is: %d\n", min);

free(val);

}

/\*

OUTPUT

C:\Users\sreyas\Desktop\labs\OS\threads>gcc threads.c -o x -lpthread

C:\Users\sreyas\Desktop\labs\OS\threads>x 2 5 6 73 178 56 88 23 98

Average value is: 58.000

Maximum value is: 178

Minimum value is: 2

C:\Users\sreyas\Desktop\labs\OS\threads>

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